Claims

1   1.   A method of sending data from a transmit site to a receive site, the method comprising:

2   dividing a transmit data stream having a first bit rate into multiple data streams with each

3   of the multiple data streams having a bit rate which is lower than the first bit rate;

4   transmitting each of the multiple data streams over a plurality of RF channels,

5   wherein at least one of the RF channels serves a plurality of users; and

6   recombining the multiple data streams at the receive site to provide a receive data stream

7   having a bit rate equal to the first bit rate.

2.   The method of claim 1 wherein data is sent from the transmit site to a plurality of receive

sites.

3.   The method of claim 1, wherein data is sent from a plurality of transmit sites to a receive

site.

4.   The method of claim 1 wherein each of the multiple data streams are packetized.

5.   The method of claim 4 further comprising:

2   establishing a plurality of virtual links over each RF channel between send and receive

3   sites; and distributing packets over the plurality of virtual links in a controlled fashion.

1   6.   The method of claim 5 wherein the controlled fashion is via load balancing.

1   7.   The method of claim 5 wherein the controlled fashion takes into account scheduling

2   policies.

1   8.   The method of claim 4 further comprising :

2   maintaining a separate queue for each of the plurality of RF channels;

3   placing each packet into one of the separate queues; and

4   transmitting the packet on each of the plurality of RF channels in a predetermined order.

1   9.   The method of claim 4 further comprising:

2   maintaining a separate queue for each of the plurality of RF channels;

3   placing each packet received from an RF channel into one of the separate queues; and

4   recombining each of the packets received from the RF channel into a single data stream by

5   taking packets from the queues in a predetermined order.

1   10.   The method of claim 1 wherein the received data stream obtained by recombining the

2   multiple data streams is identical to the transmit data stream.

11.   The method of claim 1 wherein each of the plurality of RF channels correspond to RF

channels carried over an RF cable and wherein each of the RF channels is provided having a

different carrier frequency.

12.   The method of claim 1 wherein at least one of the channels which carries one of the

multiple data streams also carries data used by at least one other user, wherein the original user

and the new user receive data over a different number of RF channels.

1   13.   The method of claim 5 wherein the virtual links are established via a tunneling process.

1   14.   The method of claim 13 wherein the tunneling process is an IP tunneling process.

1   15.   The method of claim 5 wherein the virtual links are established via a MAC-layer process.

1   16.   The method of claim 1 wherein the channels correspond to RF channels transmitted via a

2   wireless signal path.

1   17.   The method of claim 1 wherein the channels are carried over a CATV plant.

1   18.   The method of claim 1 wherein the transmit and receive data streams are carried over an

2   optical fiber.

1   19.   The method of claim 1 wherein each of the plurality of RF channels are adjacent in

2   frequency.

1   20.   The method of claim 1 wherein each of the plurality of RF channels are not adjacent in

2   frequency.

1   21.   The method of claim 1 wherein each of the plurality of RF channels are provided as

2   DOCSIS channels.

22.   The method of claim 21 wherein each of the plurality of DOCSIS channels are

compatible for use with legacy DOCSIS users.

23.   The method of claim 1 wherein at least one of the channels which carries one of the

multiple data streams also carries data used by at least one other user, wherein the at least one

other user only uses that channel.

24.   The method of claim 1 wherein at least one of the channels which carries one of the

2   multiple data streams also carries data used by at least one other user, wherein the at least one

3   other user uses at least one channel not used by the original user.

1   25.   The method of claim 1 where the number of RF channels used can change dynamically.

1   26.   The method of claim 4 wherein the packets correspond to IP packets.

1   27.   The method of claim 4 wherein the packets correspond to MAC layer packets.

1   28.   The method of claim 4 wherein the packets contain one or more encapsulated IP packets.

1   29.   The method of claim 9 wherein the recombination is done without packet identifying

2   information.

1   30.   The method of claim 14 wherein the transmit site utilizes a TCP gateway.